Communications Network

At right is the Multi-Compatible Network Interface Unit (MCNIU) system, a high performance, 100-megabit-per-second fiber optic communications network for linking the various systems on board Space Station *Freedom*.

Developed for NASA's Johnson Space Center by Honeywell Inc., Minneapolis, Minnesota, the MCNIU is intended to connect the space station's communications and tracking, guidance and navigation, life support, electric power, payload data, hand controls, display consoles and other systems, and also communicate with diverse processors. In the lower photo, members of Honeywell Space Systems Operations design team are conducting a test of MCNIU's ability to exchange information between IBM, VAX and Sun Unix computers, a capability analogous to a person speaking three languages fluently and simultaneously.

The MCNIU system includes a complete seven-layer International Standards Organization open systems interconnection architecture. Designed to interface between low-speed digital electronics and extremely high-speed fiber optics, the system runs at 10 times the speed of conventional fiber optics and has been tested above 1,000 messages a second; at this rate, the MCNIU could transmit the entire text of Encyclopedia Britannica in less than one minute. It also features a dual counterrotating ring architecture, which automatically recovers from fault conditions in milliseconds and thus ensures continuous operation in the event of a system failure.

Honeywell is now marketing MCNIU commercially. It has applicability in certain military operations, such as interconnection of multicomputer shipboard networks, or civil control centers, such as the Federal Aviation Administration's air traffic control network. It has nongovernment utility among large companies, universities and research organizations that transfer large amounts of data among workstations and computers.